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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/800,041

03/12/2004

Ga-Lane C. Chen

8587

25859

7590

12/01/2005

WEI TE CHUNG
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EXAMINER

LAM, HUNG H

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/800,041 | CHEN, GA-LANE C. | |
| | Examiner | Art Unit | |
| | Hung H. Lam | 2615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/06/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/12/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 10/06/2006, have been entered and made of record. Claims 1-10 are pending.

Response to Arguments

2. Applicant's arguments, see Amendment (Remarks), page 5, filed 10/06/05, with respect to the rejection(s) of claim(s) 1-10 under Choi and Anderson have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Suda (US-4,657,352).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

CLAIM 10 IS FIRST EXAMINED.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (Derwent-2001-439,151) in view of Suda (US-4,657,352).

With regard to **claim 10**, Choi discloses a method of capturing a picture, comprising: providing an image sensor module with a camera lens (240), which defines a non- spherical surface (Page 1; Detailed Description), and an image sensor for transforming optical signals to

analog signals (it is inherent that image sensor package 210 transforms optical signal to analog signals), wherein the camera lens is spatially fastened to the image sensor (the mounting part 212 and 232 must permit camera lens 240 to be spatially fastened to the image sensor package 210); and

coating an infrared layer upon a back surface of said lens and between said lens and said image sensor (see image sensing module 200; Page 1; Detailed Description).

However, Choi fails to disclose a lens, which defines a planar surface.

In the same field of endeavor, Suda teaches an imaging optical system wherein a non-spherical single lens comprises a planar surface (Col. 3, Ln. 18-21). Suda further teaches that the designed lens (Fig. 1; lens 1) provides an easy manufacture process and wherein the spherical aberration and coma are well corrected (Col. 3, Ln. 22-35). In light of the teaching from Suda, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Choi by having a lens with non-spherical surface and planar surface as claimed by Suda in order to provide an improved imaging optical system which is easy to manufacture and which has a good image performance (Suda: Col. 1, Ln. 43-45).

5. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Suda (US-4,657,352) and further in view of Anderson (US-6,563,535).

With regard to **claim 1**, Choi discloses an image sensor module (200), comprising a camera lens with a non-spherical surface (non-spherical lens 240) and an image sensor for transforming optical signals to analog signals wherein the camera lens is spaced apart from the image sensor (Page 1, Detailed Description; image sensor package 210 inherently transforms

optical signals to analog signals; lens 240 is spaced apart from image sensor package 210 by the empty space between them as shown in camera module 200).

However, Choi fails to disclose a lens, which defines a planar surface.

In the same field of endeavor, Suda teaches an imaging optical system wherein a non-spherical single lens comprises a planar surface (Col. 3, Ln. 18-21). Suda further teaches that the designed lens (Fig. 1; lens 1) provides an easy manufacture process and wherein the spherical aberration and coma are well corrected (Col. 3, Ln. 22-35). In light of the teaching from Suda, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Choi by having a lens with non-spherical surface and planar surface as claimed by Suda in order to provide an improved imaging optical system which is easy to manufacture and which has a good image performance (Suda: Col. 1, Ln. 43-45).

Claim 1, differs from Choi and Suda in that the claim further requires DSP, MCU, DRAM, and a circuitry for connecting the image sensor module, DSP, MCU, DRAM, and the output apparatus. However, the limitations are well known in the art as taught by Anderson.

In the same field of endeavor, Anderson teaches a digital camera comprising: a digital signal processor for transforming analog signals to digital signals (digital signal processor 106; Fig.1; col. 4, line 12); a micro control unit for processing the digital signals out from the DSP (CPU 110, Fig. 1; col. 4, line 37); a dynamic random access memory for storing data (col.4, line 40); an output apparatus (col.4, line 49); and a circuitry for connecting the image sensor module, the DSP, the MCU, the DRAM and the output apparatus together (Fig.1). In light of the teaching from Anderson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to process the output of the image sensor module of Choi and Suda as taught

in Anderson. The modifications thus provide an improved layout of the digital camera wherein not only the hardware is optimized to reduce the overall cost, but also the image processing speed is enhanced (Anderson; Col. 3, Ln. 10-19).

With regard to **claim 2**, Choi in view of Suda and further in view of Anderson discloses the digital camera wherein the image sensor further includes an infrared septum (Choi; Page 1, Detailed Description; infrared thin film is coated on the first 241 or second 242 non-spherical surface of lens 240).

With regard to **claim 3**, Choi in view of Suda and further in view of Anderson discloses the digital camera wherein the camera lens further includes a lens part (non-spherical lens 240).

With regard to **claim 4**, Choi in view of Suda and further in view of Anderson discloses the digital camera wherein the camera lens further includes a mounting part (Choi: the mounting part is interpreted as the lower surface 242 and internal surface of the synthetic resin cover 230).

With regard to **claim 5**, Choi in view of Suda and further in view of Anderson discloses the digital camera wherein the infrared septum is plating on a face of the mounting part (Choi: Page 1, Detailed Description).

With regard to **claim 6**, Choi in view of Suda and further in view of Anderson discloses the digital camera wherein the image sensor further includes several sensitization elements and

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an underlay (Choi: 214 is interpreted as the underlay. the surface above 214 wherein the lights are captured is interpreted as the sensitive elements).

With regard to **claims 7 and 8**, Choi in view of Suda and further in view of Anderson fails to explicitly disclose the digital camera wherein the camera lens is fixed to the image sensor by hot mold glue; wherein the hot mold glue is 353ND epoxy.

Official Notice is taken that it is well known and expected in the art to use 353ND epoxy glue as a high temperature epoxy and for packaging image sensing integrated circuit. Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Choi, Suda and Anderson to use the hot mold glue / 353ND epoxy in order to fix the camera lens 240 to the image sensors package 210. The modifications thus provide a harder connection between camera lens 240 and image sensor package 210 with higher temperature endurance.

With regard to **claim 9**, all the limitations are contained in claim 1 except for the limitation that the camera lens with spatially fastened to the image sensor. However, Choi does teach that limitation (see the interconnection between Lens {240,230} and image sensor package 210; the mounting part 212 and 232 must permit camera lens to spatially fastened to the image sensor package 210).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regard the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL

11/22/05



DAVID OMETZ
SUPERVISORY PATENT EXAMINER